

Listing of the Claims:

1. (Original) A process for converting a feedstock into at least one useful material, comprising:

preparing a slurry from the feedstock;

reacting the slurry in a first reaction to produce a reacted feed comprising at least one reacted solid product, at least one reacted liquid product, and water;

separating said at least one reacted solid product, said water, and said at least one reacted liquid product from said reacted feed; and

converting said at least one reacted liquid product into at least one useful material in a second reaction.
2. (Currently amended) The process of claim 1, wherein said at least one useful material is comprises carbon solids.
3. (Currently amended) The process of claim 1, wherein said at least one useful material comprises a mixture of hydrocarbons.
4. (Currently amended) The process of claim 3, wherein said mixture of hydrocarbons comprises a fuel gas and an oil.
5. (Currently amended) The process of claim 1, wherein said preparing comprises driving off ammonia from said feedstock.
6. (Currently amended) The process of claim 1, wherein said first reaction takes place at a pressure of about 20-120 atmospheres.
7. (Currently amended) The process of claim 6, wherein said pressure is about 50 atmospheres.
8. (Currently amended) The process of claim 1, wherein said first reaction takes place at a temperature in the range about 150 °C to about 330 °C.
9. (Currently amended) The process of claim 1, wherein said reacting drives off at least one contaminant.
10. (Currently amended) The process of claim 9, wherein said at least one contaminant is a sulfur-containing material.

11. (Currently amended) The process of claim 9₁ wherein said at least one contaminant is a mercury-containing material.
12. (Currently amended) The process of claim 9₁ wherein said at least one contaminant is a halogen-containing compound.
13. (Currently amended) The process of claim 1₁ wherein said reacting drives off steam.
14. (Currently amended) The process of claim 13₁ wherein said steam is redirected to heat said slurry during said preparing.
15. (Currently amended) The process of claim 1₁, wherein said separating comprises a first separation and a second separation.
16. (Currently amended) The process of claim 1₁ wherein said at least one reacted liquid product comprises at least one fat derivative or fatty acid.
17. (Currently amended) The process of claim 1₁ wherein said at least one reacted solid product comprises at least one mineral compound.
18. (Currently amended) The process of claim 1₁ further comprising, prior to said converting, diverting a portion of said at least one reacted liquid product and separately converting said portion into at least one specialty chemical.
19. (Currently amended) The process of claim 18₁ wherein said at least one specialty chemical comprises a fatty acid.
20. (Currently amended) The process of claim 1₁ wherein said second reaction takes place at a temperature in the range about 400 °C to about 600 °C.
21. (Currently amended) The process of claim 1₁ wherein said at least one useful material is pathogen-free.
22. (Currently amended) The process of claim 1₁ wherein said feedstock comprises rubber materials.
23. (Currently amended) The process of claim 22₁ wherein said feedstock comprises one or more tires.

24. (Currently amended) The process of claim 1, wherein said feedstock comprises municipal sewage sludge.
25. (Currently amended) The process of claim 1, wherein said feedstock comprises food processing waste.
26. (Currently amended) The process of claim ~~1~~ 25, wherein said feedstock comprises animal ~~food processing waste comprises animal offal~~.
27. (Currently amended) The process of claim 1, wherein said feedstock comprises mixed plastics.
28. (Currently amended) The process of claim 1, wherein said feedstock comprises PVC.
29. (Currently amended) The process of claim 28, wherein said first reacting drives off at least one chlorine-containing contaminant.
30. (Currently amended) The process of claim 1, wherein said feedstock comprises animal manure.
31. (Currently amended) The process of claim 1, wherein said feedstock comprises one or more byproducts of food manufacture and distribution selected from the group consisting of: ~~animal offal~~, fryer oils, corn stalks, rice hulls, waste scraps, and last-press edible oils.
32. (Currently amended) The process of claim 31, wherein said last-press edible oil is selected from the group consisting of: canola, soybean, palm, coconut, rape seed, cotton seed, corn, and olive oil.
33. (Currently amended) The process of claim 1, wherein said feedstock is selected from the group consisting of: by-products of paper and other wood industry manufacturing, paper-pulp effluent, and black liquor.
34. (Currently amended) The process of claim 33, wherein said byproducts of paper manufacturing comprise cellulose or lignin containing materials.
35. (Currently Amended) The process of claim ~~1~~ 1, wherein said feedstock is selected from the group consisting of: leaves, grass clippings, bagasse, seaweed, and cotton waste, ~~and animal waste~~.

36. (Currently amended) The process of claim 1, wherein said feedstock is selected from the group consisting of: plastic bottles, old computers, and municipal solid waste.
37. (Currently amended) The process of claim 1, wherein said feedstock is selected from the group consisting of: oil-refinery residues, shale oil, and drilling mud.
38. (Currently amended) The process of claim 1, wherein said feedstock is selected from the group consisting of: harbor-dredged sediments, industrial sludges, milling waste, coal refinery wastes, and tar sands.
39. (Currently amended) The process of claim 1, wherein said feedstock is selected from the group consisting of: anthrax spores, infectious medical waste, and biological pathogens.
40. (Currently amended) The process of claim 1, wherein said at least one useful material is a carbonaceous material.
41. (Currently amended) The process of claim 40, wherein the carbonaceous material is depleted of mercury-containing contaminants.
42. (Currently amended) The process of claim 40, wherein the carbonaceous material is depleted of sulfur-containing contaminants.
43. (Withdrawn) A fuel oil manufactured by the process of claim 1.
- 44-46. (Canceled)
47. (Withdrawn) A fuel oil manufactured by a process, comprising:

preparing a slurry from a carbon-containing feedstock;
reacting the slurry in a first reaction to produce a reacted feed comprising at least one reacted solid product, at least one reacted liquid product, and water;
separating said at least one reacted solid product, said water, and said at least one reacted liquid product from said reacted feed;
converting said at least one reacted liquid product into the fuel oil in a second reaction.
48. (Currently Amended) A process for converting a feedstock into at least one useful material, comprising: preparing a slurry from the feedstock;

passing the slurry through a heat exchanger, wherein one or more gases is vented, to produce a conditioned slurry;

reacting the conditioned slurry in a first reaction, wherein steam and gas is liberated, to produce a reacted feed comprising at least one reacted solid product, at least one reacted liquid product, and water, wherein the reacted solid product comprises at least one mineral; lowering a temperature, and lowering a pressure, of the reacted feed, to produce an intermediate feed;

separating the at least one mineral from the intermediate feed, thereby producing a mixture comprising at least one reacted liquid product, and water;

diverting said water to storage; and

subjecting said at least one reacted liquid product to a second reaction wherein carbon solids and a mixture of hydrocarbon vapor and gases are produced.

49. (Withdrawn) An apparatus for converting a feedstock into at least one useful material, comprising:

a pre-treatment unit for producing a heated slurry from the feedstock;

a first stage reactor communicating with said vessel to receive said heated slurry, said first stage reactor configured to subject said heated slurry to a first increased temperature and a first increased pressure to produce a reacted feed that comprises at least one reacted solid product, at least one reacted liquid product, and water;

at least one second stage separation unit communicating with the first stage reactor to receive the at least one solid product, at least one liquid product, and water, said unit configured to separate out said at least one reacted solid product, said water, and said at least one reacted liquid product; and

a third stage reactor communicating with the separation unit to receive said at least one reacted liquid product, said third stage reactor configured to subject the at least one reacted liquid product to a second increased pressure and a second increased temperature, thereby converting the at least one reacted liquid product to at least one useful material.

50-64. (Canceled)

65. (Currently amended) A process for converting tires into oil, comprising:

dissolving the tires in a solvent;

preparing a slurry from the tires;
reacting the slurry with water in a first reaction to produce a reacted feed comprising at least one reacted solid product, at least one reacted liquid product;
separating said at least one reacted solid product, said water, and said at least one reacted liquid product from said reacted feed; and
converting said at least one reacted liquid product into oil in a second reaction.

66. (Currently amended) The process of claim 65, wherein the first reaction takes place at a temperature between about 250 °C and about 400 °C.

67. (Currently amended) The process of claim 65, wherein the second reaction takes place at a temperature between about 300 °C and about 525 °C.

68. (Currently amended) The process of claim 65, wherein the solvent is oil obtained from said converting.

69. (Currently amended) A process for converting mixed plastics into at least one useful material, comprising:

preparing a slurry from the mixed plastics;
reacting the slurry with water in a first reaction to produce a reacted feed comprising at least one reacted solid product, at least one reacted liquid product;
separating said at least one reacted solid product, said water, and said at least one reacted liquid product from said reacted feed; and
converting said at least one reacted liquid product into at least one useful material in a second reaction.

70. (Currently amended) The process of claim 69, wherein the first reaction takes place at a temperature between about 200 °C and about 250 °C.

71. (Currently amended) The process of claim 69, wherein the second reaction takes place at a temperature between about 300 °C and about 525 °C.

72. (Original) A process for converting municipal sewage sludge into at least one useful material, comprising:

preparing a slurry from the municipal sewage sludge;

reacting the slurry in a first reaction to produce a reacted feed comprising at least one reacted solid product, and at least one reacted liquid product, and water;

separating said at least one reacted solid product, said water, and said at least one reacted liquid product from said reacted feed;

converting said at least one reacted liquid product into at least one useful material; and

in a second reaction, converting said at least one solid product into a mixture of hydrocarbon oils, fuel gas and a mixture of minerals and carbon.

73. (Currently amended) The process of claim 72, wherein the first reaction takes place at a temperature between about 170 °C and about 250 °C.

74. (Currently amended) The process of claim 72, wherein the second reaction takes place at a temperature between about 300 °C and about 525 °C.

75. (Currently amended) A process for converting animal processing waste ~~offal~~ into at least one useful material, comprising:

preparing a slurry from the animal processing waste ~~offal~~;

reacting the slurry in a first reaction to produce a reacted feed comprising at least one reacted solid product, and at least one reacted liquid product, and water;

separating the at least one reacted solid product, the water, and the at least one reacted liquid product from the reacted feed; and

in a second reaction, converting the at least one reacted liquid product into a mixture of hydrocarbon oils, fuel gas, and carbon.

76. (Currently amended) The process of claim 75, wherein the first reaction takes place at a temperature between about 150 °C and about 330 °C.

77. (Currently amended) The process of claim 75, wherein the second reaction takes place at a temperature between about 300 °C and about 525 °C.

78. (Currently amended) The process of claim 75, wherein the first reaction takes place at about 250 °C.
79. (Currently amended) The process of claim 75, wherein the first reaction takes place at a pressure of 20-120 atmospheres.
80. (Currently amended) The process of claim 75, wherein the first reaction takes place at a pressure of about 50 atmospheres.
81. (Currently amended) The process of claim 75, wherein the animal processing waste comprises animal offal ~~is turkey~~ offal.
82. (Currently amended) The process of claim ~~26~~ 81, wherein the animal offal comprises ~~is~~ turkey offal.
83. (Canceled)
84. (New) The process of claim 26, wherein said animal processing waste comprises animal offal.
85. (New) The process of claim 84, wherein said animal offal comprises turkey offal.
86. (New) The process of claim 75, wherein the animal processing waste comprises animal manure.